June 25, 2004

DECLARATION

The undersigned, Dana Scruggs, having an office at 8902B Otis Avenue, Suite 204B, Indianapolis, Indiana 46216, hereby states that she is well acquainted with both the English and German languages and that the attached is a true translation to the best of her knowledge and ability of PCT/DE 03/03802 (INV.: DELFINI, S., ET AL), entitled "Power Compass Saw".

The undersigned further declares that the above statement is true; and further, that this statement was made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or document or any patent resulting therefrom.

Dana Scruggs

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POWER COMPASS SAW

Background Information

The present invention is directed to a power compass saw having the features of the definition of the species in Claim 1.

A power compass saw is known from GB patent 23 223 28, the reciprocating roller of which has a conical, central circumferential groove in which the saw blade back of a saw blade moved up and down in the power compass saw is to be supported.

Compass saw blades are also known, the side surfaces of which are tapered toward the saw blade back at an acute angle, so that they are guided—laterally in two dimensions—in the reciprocating roller of the aforementioned power compass saw and are therefore relatively well supported.

With particularly narrow compass saw blades, there is a danger, however, that they are unable to be supported on both sides simultaneously in the groove—which is too wide—of the reciprocating roller, thereby resulting in the danger that the saw cut will be unclean.

Advantages of the Invention

The present invention with the features of Claim 1 has the advantage that the compass saw blades of the compass saw according to the invention are configured with little outlay such that they have identical, minimized play on the sides, independently of the thickness of the saw blade. The saw blades are no longer guided solely at the saw blade back, but primarily at the side surfaces. As a result, the tendency for the saw blade to saw untrue is greatly minimized.

Due to the fact that the taper in the back region of the saw blades is formed in a noncutting manner, and is stamped in particular, it is particularly wear-proof.

Due to the fact that the guide roller serves as reciprocating stroke-support roller, it acts together with the saw blade having a particular configuration to bring about an improved sawing advancement with reduced cutting channel width, because the saw blade is guided more stiffly and does not undergo torsional movement.

Due to the fact that the saw blade back, measured at the taper and/or cone edges, is wider than the groove bottom of the circumferential groove—in particular is not wider than 1.5 mm—the saw blade back is prevented from resting directly on the groove bottom, and sole lateral support of the saw blade is ensured.

Due to the fact that the groove sides of the central circumferential groove in the guide roller have a 5° taper, the saw blades having a 7° taper on the back are guided laterally securely.

Due to the fact that the guide roller has a diameter of 10 to 25 mm and the circumferential groove is as deep as possible, the lateral guidance of all compass saw blade types known heretofore having backs with a 7° taper is very secure.

Due to the fact that the groove bottom of the circumferential groove is not as wide as the saw blade back, and is not wider than 1.4 mm in particular, the power compass saw can be used to saw in a particularly controlled, reliable and precise manner.

Drawing

The present invention is explained hereinbelow with reference to an associated drawing.

Figure 1 shows a side view of the power compass saw according to the invention,

Figure 2 is an enlarged section of a longitudinal cut according to Figure 1,

Figure 3 is an enlarged section of the cross section according to Figure 1 in the area of the guide roller.

Figure 4 is a partial cross section of the guide roller alone,

Figure 5 is a side view of the saw blade according to the invention,

Figure 6 is a cross section of the saw blade according to the invention,

Figure 7 is an enlarged schematic cross section of the guide roller with saw blade guided therein.

Detailed Description of the Embodiment

A compass saw 10 with a motor housing 12 serving as handle is shown in Figure 1, the motor housing extending parallel with the feed direction and out of the back region of which an electrical cable 13 extends.

In the front region, compass saw 10 includes a gearbox case 14 that is flange-mounted to motor housing 12, the gearbox case, together with motor housing 12, being diametrically opposed—in a manner that allows the angle to be adjusted—to a base plate 16 for making mitre cuts. A rod-like mechanism for providing protection against accidental contact 17 is rigidly situated between gearbox case 14 and base plate 16 on gearbox case 14, the mechanism preventing accidental contact with a saw blade 27 from the front in the area of its saw teeth.

A motor, which is not shown in greater detail, imparts a rotary movement to its motor shaft 18, which ends in a shaft pinion 19 and extends into gearbox case 14. A gear wheel 20 meshes with shaft pinion 19, the gear wheel being supported such that its axis is parallel with motor shaft 18 and driving an eccentric pin in a rotary manner, the pin serving as crank 21 and meshing in a link-like sliding member 22 that is connected to a lifting rod 24 in a fixed manner.

Lifting rod 24 is supported in an upper lifting rod guide 25 and, with its lower region, in a lower lifting rod guide 26 in a gliding manner and is guided in a straight line. A reciprocating lever 28 located at the bottom of gearbox case 14 is driven in a reciprocating manner by gear wheel 20 in a manner that is not explained further, whereby its guide roller 29, serving a reciprocating roller, bears against the back 270 of saw blade 27 and imparts to it, together with lifting rod 24, a reciprocating stroke that moves back and forth in parallel with the feed direction.

Mounted on the lower end of lifting rod 24 is a clamping sleeve 32 for accommodating and clamping saw blade 27. Saw blade 27 has a back 270 that is stamped in the shape of a "V", the back being centered in the circumferential V-groove of guide roller 29, with its beveled edges 272 supported on both sides.

Figure 2 shows an enlarged section according to Figure 1 in the area of guide roller 29. The details listed hereinabove will not be repeated here.

Figure 3 shows a vertical cross section of compass saw 10 according to Figure 1, whereby the cutting plane extends through reciprocating lever 28 and guide roller 29. As a result, the configuration of guide roller 29 with a particular conical circumferential groove 290 is clearly visible. The remaining reference numerals, which were explained previously for Figures 1 and 2, will not be discussed here again.

Figure 4 shows guide roller 29 alone in a partial sectional view, whereby circumferential groove 290 is particularly visible, in particular its sides 291, which tilt toward each other at an overall angle of 5 degrees. Groove bottom 292 is shown as well; it is slightly narrower than the greatest width B of saw blade back 270 of compass saw blade 27.

Figure 5 shows a side view of compass saw blade 27 with saw blade back 270 and toothed side 271 on the opposite side thereof. The back region of saw blade back 270 is stamped in the shape of a "V", so that two beveled edges 272 are produced, the beveled edges extending in a tapering manner toward saw blade back 270.

As seen on the right, saw blade 27 has a saw blade tip 275 and, as seen on the left, it has a clamping end 277, with which it is releasably clampable in clamping sleeve 32.

Figure 6 shows an enlarged cross section of saw blade 27, whereby beveled edges 272 that taper toward each other at a 7-degree angle are clearly visible.

Figure 7 shows a semi-cross section of guide roller 29 with its circumferential groove 290 and saw blade 27 supported therein. This particularly narrow saw blade 27 bears, as an exception, against groove bottom 292 with its saw blade back 270. At the same time, it bears against the lateral groove sides 291 of circumferential groove 290 of guide roller 29 with diametrically opposed edges 279. Edges 279 are formed on saw blade 27 at the transition from its side surface to its beveled edge 272. As a result, a lateral shift and/or torsional movement of saw blade 27 during sawing is prevented, and a particularly correct course of cutting during sawing is ensured.

With wider/stronger saw blades, their saw blade backs 270 do not come to bear against groove bottom 292 of circumferential groove 290; instead, they bear against groove sides 291 of circumferential groove 290 only with their edges 279.